

Document made available under the Patent Cooperation Treaty (PCT)

International application number: PCT/IL2006/000288

International filing date: 02 March 2006 (02.03.2006)

Document type: Certified copy of priority document

Document details: Country/Office: US
Number: 60/657,410
Filing date: 02 March 2005 (02.03.2005)

Date of receipt at the International Bureau: 23 March 2006 (23.03.2006)

Remark: Priority document submitted or transmitted to the International Bureau in compliance with Rule 17.1(a) or (b)



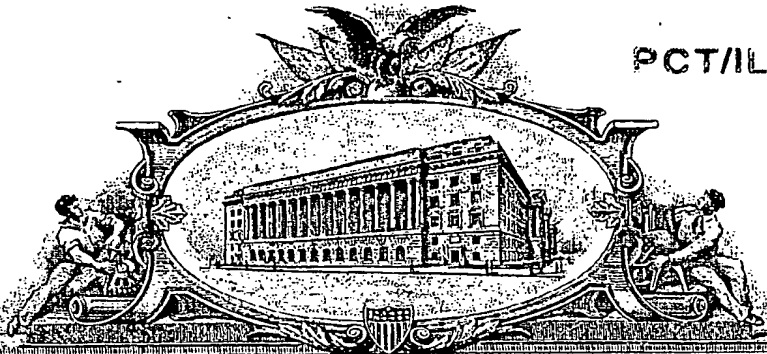
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APPLICATION NUMBER: 60/657,410

FILING DATE: March 02, 2005

THE COUNTRY CODE AND NUMBER OF YOUR PRIORITY APPLICATION, TO BE USED FOR FILING ABROAD UNDER THE PARIS CONVENTION, IS US60/657,410

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PROVISIONAL APPLICATION FOR PATENT COVER SHEETThis is a request for filing a **PROVISIONAL APPLICATION FOR PATENT** under 37 CFR 1.53 (b)(2).

Docket Number		29480		Type a plus sign (+) inside this box ->	+
INVENTOR(s) / APPLICANT(s)					
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TITLE OF THE INVENTION (280 characters max)					
DEVICE AND METHOD FOR TRANSPORTING AND HANDLING TISSUE					
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STATE	VIRGINIA	ZIP CODE	22202	COUNTRY	USA
ENCLOSED APPLICATION PARTS (check all that apply)					
<input checked="" type="checkbox"/> 21 pages of specification (including Abstract page)			<input type="checkbox"/> Assignment to:		
<input type="checkbox"/> ___ pages of sequence listing			<input checked="" type="checkbox"/> 66 Claims		
<input checked="" type="checkbox"/> 10 sheet of drawings			<input checked="" type="checkbox"/> Applicant is entitled to Small Entity Status under 37 CFR 1.9 and 37 CFR 1.27		
<input checked="" type="checkbox"/> 31 total pages					
THE FILING FEE HAS BEEN CALCULATED AS SHOWN BELOW:					
FOR:	SMALL ENTITY RATE	FEE	OTHER THAN A SMALL ENTITY RATE	FEE	
Provisional Application Filing Fee	1	\$ 100		\$ 200	
Provisional Application Size Fee (Per 50 Pages Over 100)	0 x \$ 125	\$ 0	x \$250	\$	
	TOTAL	\$ 100	TOTAL	\$	
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The invention was made by an agency of the United States Government or under a contract with an agency of the United States Government.

☒ No ☐ Yes, the name of the US Government agency and the Government contract number are: _____

Respectfully submitted,

SIGNATURE

Martin D. Moynihan

2 March 2005

Date

40,338

REGISTRATION NO.
(if appropriate)TYPED or PRINTED NAME Martin Moynihan☐ Additional inventors are being named on separately numbered sheets attached hereto**USE ONLY FOR FILING A PROVISIONAL APPLICATION FOR PATENT**

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APPLICATION FOR PATENT

5 Inventors: Dan HASHIMSHONY, Orit YARDEN, Gal AHARONOWITZ,
 Gil COHEN, and Iddo GELTNER

 Title: **DEVICE AND METHOD FOR TRANSPORTING AND HANDLING**
10 **TISSUE**

FIELD AND BACKGROUND OF THE INVENTION

 The present invention relates to a device and method for transporting and
15 handling tissue.

 Tissue, being largely water or fat, does not maintain its shape. In
consequence, positional reference of a tissue that has been removed, vis a vis its
positional reference is highly desirable. For example, where a biopsy sample is taken,
20 and only a portion of it is found cancerous, the positional reference is necessary, to
determine where the cancerous tissue in the body may be. Similarly, where a lump of
cancerous tissue is removed, without a margin of healthy tissue around it, i.e., without
a "clean margin", thus indicating that some cancerous tissue may have been left in the
body, the positional reference is necessary, to correlate the orientation of the removed
25 tissue specimen with the body tissue.

 Today, any one of two methods may be used for marking the orientation of the
removed tissue. The first is known as the suture method. The surgeon marks a lateral
edge of the removed tissue specimen with a long suture and a superior edge of the
removed tissue specimen with a short suture. Yet, this method is inaccurate, as it is
30 affected by changes in the removed tissue specimen during handling and
transportation.

 The second method is known as inking. The surgeon uses six colors of ink to
mark the six faces of the removed tissue specimen. This method is rather demanding

and involves much handling of the removed tissue specimen. Handling may be undesirable when the removed tissue specimen is yet to undergo pathological examinations.

5 US Patent 5,913,857, to Ritchart, et al., entitled, "Methods and devices for collection of soft tissue," provides a tissue sampling system for breast biopsies, intraoperative staging, laparoscopic surgery, lymphadenectomy and other procedures. Similarly, US Patent 6,007,497, to Huitema, entitled, "Surgical biopsy device," describes a biopsy probe for the collection of a soft tissue.

10 In these devices, the positional reference may be maintained through a rigid connection between a cutting tool and a carrying frame. However, where the tissue is first cut then transported to a carrying frame, the positional reference may be lost.

A device and method for transporting tissue while maintaining its positional reference, in a reliable manner, is desired.

15 SUMMARY OF THE INVENTION

The present invention overcomes the shortcomings of the presently known configurations by providing a device and method for tissue transport and handling, while maintaining the in-vivo tissue orientation. The device includes first and second frames, configured to be superimposed, and having a cross-sectional area of between
20 50% and 90% of a cross-sectional area of a face of a removed tissue specimen. The first and second frames further include a design, which defines a lateral side, a superior side, and a top face. Additionally, the device includes holders, for holding the first and second frames together, when superimposed, while the removed tissue specimen is sandwiched therebetween, such that a tissue lateral side, a tissue superior
25 side, and a tissue top face match the design. In accordance with an alternative embodiment, the device has a cross-sectional area which is larger than the face of a removed tissue specimen, and is lined with a thin material which is substantially transparent to x-ray and gamma imaging.

30 In accordance with an aspect of the present invention, there is thus provided a device for tissue transport and handling, comprising:

first and second frames, configured to be superimposed, which comprise:

a cross-sectional area of between 50% and 90% of a cross-sectional area of a face of a removed tissue specimen; and

an overall design, which defines a device lateral side, a device superior side, and a device top face; and

holders, for holding the first and second frames together, when superimposed, while the removed tissue specimen is sandwiched therebetween, such that a tissue lateral side, a tissue superior side, and a tissue top face match the design.

In accordance with an additional aspect of the present invention, the frames are shaped as rectangles, and defining an opening within.

In accordance with an additional aspect of the present invention, the frames are formed of plastic.

In accordance with an additional aspect of the present invention, the frames are substantially transparent to x-ray imaging.

In accordance with an additional aspect of the present invention, the design includes a color code.

In accordance with an additional aspect of the present invention, the design includes a color code, in accordance with a 6-color scheme.

In accordance with an additional aspect of the present invention, the design includes a device lateral indicator, selected from a group consisting of a mark, a writing on the device lateral side, a color of the device lateral side, a protrusion on the device lateral side, a notch on the device lateral side, and a suture hole, adapted to receive a suture, on the device lateral side.

In accordance with an additional aspect of the present invention, the design includes a device superior indicator, selected from a group consisting of a mark, a writing on the device superior side, a color of the device superior side, a protrusion on the device superior side, a notch on the device superior side, and a suture hole, adapted to receive a suture, on the device superior side.

In accordance with an additional aspect of the present invention, the design includes a device top-face indicator, selected from a group consisting of a mark, a writing on the device top face, a color of the device top face, a protrusion on the device top face, a notch on the device top face, a writing on a device bottom face, a color of the device bottom face, a protrusion on the device bottom face, and a notch on the device bottom face.

In accordance with an additional aspect of the present invention, the holders are surgical latex bands.

In accordance with an additional aspect of the present invention, the device includes notches for maintaining the holders in place.

In accordance with an additional aspect of the present invention, the device includes handles for holding the device.

5 In accordance with an additional aspect of the present invention, the handles are corner handles.

In accordance with an additional aspect of the present invention, the device is provided in a plurality of sizes of widths and length.

10 In accordance with an additional aspect of the present invention, the plurality of sizes includes increases in width increments of between 10 and 20%.

In accordance with an additional aspect of the present invention, the plurality of sizes includes increases in length increments of between 10 and 20%.

In accordance with another aspect of the present invention, there is thus provided a method for tissue transport and handling, comprising:

15 providing a device which comprises:

first and second frames, configured to be superimposed, and comprising:

a cross-sectional area of between 50% and 90% of a cross-sectional area of a face of a removed tissue specimen; and

20 a design which defines a device lateral side, a device superior side, and a device top face; and

holders, for holding the first and second frames together, when superimposed, while the removed tissue specimen is sandwiched therebetween;

25 placing the removed tissue specimen between the first and second frames, so that a tissue lateral side, a tissue superior side, and a tissue top face match the design; and

fastening the first and second frames with the holders.

In accordance with still another aspect of the present invention, there is thus provided a device for tissue transport and handling, comprising:

30 first and second frames, each defining an inner opening, said frames being configured to be superimposed and said frames comprising:

thin linings, which are substantially transparent to x-ray imaging, and which stretch across said inner openings; and

an overall design, which defines a device lateral side, a device superior side, and a device top face; and

holders, for holding said first and second frames together, when superimposed, while said removed tissue specimen is sandwiched therebetween, such that a tissue lateral side, a tissue superior side, and a tissue top face match said design.

In accordance with yet another aspect of the present invention, there is thus provided a method for tissue transport and handling, comprising:

providing a device which comprises:

first and second frames, each defining an inner opening, said frames being configured to be superimposed and said frames comprising:

thin linings, which are substantially transparent to x-ray imaging, and which stretch across said inner openings;

a design which defines a device lateral side, a device superior side, and a device top face; and

holders, for holding said first and second frames together, when superimposed, while said removed tissue specimen is sandwiched therebetween;

placing said removed tissue specimen between said first and second frames, so that a tissue lateral side, a tissue superior side, and a tissue top face match said design; and

fastening said first and second frames with said holders.

Unless otherwise defined, all technical and scientific terms used herein have the same meaning as commonly understood by one of ordinary skill in the art to which this invention belongs. Although methods and materials similar or equivalent to those described herein can be used in the practice or testing of the present invention, suitable methods and materials are described below. In case of conflict, the patent specification, including definitions, will control. In addition, the materials, methods, and examples are illustrative only and not intended to be limiting.

BRIEF DESCRIPTION OF THE DRAWINGS

The invention is herein described, by way of example only, with reference to the accompanying drawings. With specific reference now to the drawings in detail, it is stressed that the particulars shown are by way of example and for purposes of illustrative discussion of the preferred embodiments of the present invention only, and are presented in the cause of providing what is believed to be the most useful and readily understood description of the principles and conceptual aspects of the invention. In this regard, no attempt is made to show structural details of the invention in more detail than is necessary for a fundamental understanding of the invention, the description taken with the drawings making apparent to those skilled in the art how the several forms of the invention may be embodied in practice.

In the drawings:

Figures 1A - 1B schematically illustrate a device for tissue transport and handling, in accordance with the present invention;

Figures 2A - 2B schematically illustrate a device for tissue transport and handling, when assembled, in accordance with the present invention;

Figures 3 - 4 schematically illustrate devices for tissue transport and handling, of different sizes, in accordance with the present invention;

Figures 5A - 5D schematically illustrate a method of assembling a device for tissue transport and handling, in accordance with the present invention;

Figure 6 schematically illustrates a color-coded device for tissue transport and handling, in accordance with the present invention;

Figure 7 schematically illustrates an elliptical device for tissue transport and handling, in accordance with the present invention;

Figure 8 schematically illustrates a device for tissue transport and handling, having an inner grid, in accordance with the present invention;

Figure 9 schematically illustrates a device for tissue transport and handling, having a thin lining, in accordance with the present invention;

Figure 10 schematically illustrates the device 10, having graduations 36, operative as a reference coordinate system, for example, of x;y coordinates, for specifying locations on a removed tissue specimen, in accordance with the present invention. For example, a location $x = 5.5$; $y = 3.2$ may be specified, using the graduations 36.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

The present invention is of a device and method for tissue transport and handling, while maintaining the in-vivo tissue orientation. The device includes first and second frames, configured to be superimposed, and having a cross-sectional area of between 50% and 90% of a cross-sectional area of a face of a removed tissue specimen. The first and second frames further include a design, which defines a lateral side, a superior side, and a top face. Additionally, the device includes holders, for holding the first and second frames together, when superimposed, while the removed tissue specimen is sandwiched therebetween, such that a tissue lateral side, a tissue superior side, and a tissue top face match the design. In accordance with an alternative embodiment, the device has a cross-sectional area which is larger than the face of a removed tissue specimen, and is lined with a thin material which is substantially transparent to x-ray and gamma imaging.

The principles and operation of the device for tissue transport and handling, according to the present invention may be better understood with reference to the drawings and accompanying descriptions.

Before explaining at least one embodiment of the invention in detail, it is to be understood that the invention is not limited in its application to the details of construction and the arrangement of the components set forth in the following description or illustrated in the drawings. The invention is capable of other embodiments or of being practiced or carried out in various ways. Also, it is to be understood that the phraseology and terminology employed herein is for the purpose of description and should not be regarded as limiting.

Referring now to the drawings, Figures 1A - 2B schematically illustrate a device 10 for tissue transport and handling, in accordance with the present invention.

As seen in Figures 1A and 1B, the device 10 includes first and second frames 10A and 10B, configured to be superimposed, and having an overall design 15, which defines a device lateral side 16, a device superior side 17, and a device top face 18.

As seen in Figures 2A showing a superior view of the assembled device 10, the device 10 includes holders 30, for holding the first and second frames 10A and 10B together, when superimposed. A removed tissue specimen 20 is sandwiched therebetween.

As seen in Figures 2B, showing a top view of the assembled device 10, the removed tissue specimen 20 is arranged within the device 10 so that a tissue lateral side 26, a tissue superior side 27, and a tissue top face 28 match the device lateral side 16, the device superior side 17, and the device top face 18, as indicated by the design 15.

The design 15 may include suture holes 19 (Figures 1A and 1B), for tying a long suture 16A on the lateral side 16 and a short suture 16A on the superior side 16

Alternatively, the design 15 may be any one of a mark, writing, a color code, a protrusion, or a notch, on the lateral side 16, the superior side 17, and the top face 18 of the device 10. Additionally or alternatively, any other manner of unequivocally defining the lateral side 16, the superior side 17, and the top face 18 of the device 10 may be employed.

Preferably, a cross-sectional area of the frames 10A and 10B is somewhat smaller than a cross sectional area of a face 25 of the removed tissue specimen 20. Thus, the removed tissue specimen 20 rests on the structure of the frames 10A and 10B.

Preferably, the frames 10A and 10B are rectangular in shape, having a width D, which is about 75% of a length L. For example, the length L may be about 60 mm and the width W may be about 45 mm. A frame width d, may be for example, about 2 mm. A frame thickness t, shown in Figures 5A and 5B, hereinbelow, may be, for example, between about 0.5 mm and about 1 mm. It will be appreciated that other dimensions and other proportions are similarly possible. For example, the length L may be between about 10 mm and about 100 mm and the width D may be, between about 7.5 mm and about 75 mm. Alternatively, other dimensions and other proportions, which may be larger or smaller, may be used. It will be appreciated that other shapes, for example, ellipses, may similarly be possible.

Preferably, the frames 10A and 10B are formed of plastic, which is substantially transparent to x-ray imaging. Thus, x-ray imaging and gamma camera imaging may be performed on the removed tissue specimen 20, when within the device 10.

Preferably, the frames 10A and 10B are rigid, to support the removed tissue specimen 20, but somewhat resilient.

Preferably, the frames 10A and 10B include handles 22, for example, corner handles, for holding the tissue sample, when arranged within the frames. The corner handles may extend out a distance h of about 10 – 15% the length of the length L , arranged for example, at an angle δ , for example, 60 degrees. It will be appreciated
5 that other handles, of other shapes, may also be used.

The holders 30 may be surgical latex bands. Alternatively, ordinary rubber bands, ties, strings, clamps or other means of fastening the frames 10A and 10B together may be used. Notches 24 may be provided to keep the holders 30 in place.

An important consideration in the selection of the holders 30 is that they will
10 be suitable for different widths of the removed tissue specimen 20, without exerting too much pressure on the removed tissue specimens 20. For example, when using surgical latex band, a force of between 20 and 200 gram may be generated on the removed tissue specimen 20. Preferably, the holders 30 will generate a force on the removed tissue specimen 20, which is no greater than 500 gm.

Referring further to the drawings, Figures 3 and 4 schematically illustrate a
15 system of the devices 10 of varying sizes. For example, the device 10 of Figure 3 has a length $L1$ and a width $W1$, and the device 10 of Figure 4 has a length $L2$ and a width $W2$. Each of the devices 10 is used for a different size of the removed tissue specimen 20. Thus, a plurality of devices 10 may be provided, in increasing size increments of
20 about 10 % or 20%. It will be appreciated that other size increments may be employed.

Referring further to the drawings, Figures 5A – 5D schematically illustrate the method of utilizing the device 10.

As seen in Figures 5A and 5B, the frames 10A and 10B are provided with the
25 design 15 for marking the lateral side 16, the superior side 17, and the top face 18 of the device 10.

As seen in Figure 5C, the tissue specimen 20, having a cross section of the face
25, which is somewhat larger than the cross-section of the frames 10A and 10B, is placed on the first frame 10A. The placement is such that the tissue lateral side 26 is
30 at the device lateral side 16, the tissue superior side 27 is at the device superior side 17, and the tissue top side 28 is facing up.

As seen in Figure 5D, the second frame 10B is placed on the removed tissue specimen 20, and fastened with the holders 30.

Referring further to the drawings, Figure 6 schematically illustrates the device 10, wherein the design 15 is based on a color code, for example, of 6 colors, for each of the six faces.

Referring further to the drawings, Figure 7 schematically illustrates the device 10, wherein the frames 10A and 10B and the handle 22 are elliptical. It will be appreciated that many other geometrical forms may be used, and are within the scope of the present invention.

Referring further to the drawings, Figure 8 schematically illustrates the device 10, having an inner grid 32, within the frames 10A and 10B. The grid 32 may be used for very small removed tissue specimens 20, for example, less than a cubic centimeter. The grid 32 may be formed of very thin plastic, so as to be substantially transparent to x-ray and gamma ray. Thus, the removed tissue specimens 20 may undergo these examinations while in the device 10.

Figure 9 schematically illustrates the device 10, having a thin lining 34, for example of plastic or nylon, in accordance with the present invention. The thin lining 34 may also be used for very small removed tissue specimens 20. Preferably, the thin lining is substantially transparent to x-ray and gamma ray, so that the removed tissue specimens 20 may undergo these examinations while in the device 10.

Figure 10 schematically illustrates the device 10, wherein the frame can be used as a reference coordinate system, for example, of x;y coordinates, for specifying locations on the removed tissue specimen 20, in accordance with the present invention.

The advantages of the device 10, in accordance with the present invention, is that when placed within, the removed tissue specimen 20 behaves as a rigid body, and may be maneuvered, rotated, and otherwise handled, while its orientation remains fixed. In fact, six faces for the removed tissue specimen 20 may be defined and maintained, vis a vis the in-vivo orientation.

Additionally, the device 10 allows easy handling of the removed tissue specimen 20 and clear approach to its faces 25 without changing its initial orientation,

Furthermore, The device 10 allows pathological examination, x-ray and gamma scanning when the tissue is within.

Additionally, different devices 10 may be provided for different tissue sizes, so as to tailor fit the required tissue size.

Furthermore, the frame can be used as a reference coordinate system, for example, of x;y coordinates, for specifying locations on the removed tissue specimen 20.

5 It is expected that during the life of this patent many relevant devices for tissue transport and handling will be developed and the scope of the term device for tissue transport and handling is intended to include all such new technologies a priori.

As used herein the term "about" refers to $\pm 20\%$.

10 It is appreciated that certain features of the invention, which are, for clarity, described in the context of separate embodiments, may also be provided in combination in a single embodiment. Conversely, various features of the invention, which are, for brevity, described in the context of a single embodiment, may also be provided separately or in any suitable subcombination.

15 Although the invention has been described in conjunction with specific embodiments thereof, it is evident that many alternatives, modifications and variations will be apparent to those skilled in the art. Accordingly, it is intended to embrace all such alternatives, modifications and variations that fall within the spirit and broad scope of the appended claims.

20 All publications, patents and patent applications mentioned in this specification are herein incorporated in their entirety by reference into the specification, to the same extent as if each individual publication, patent or patent application was specifically and individually indicated to be incorporated herein by reference. In addition, any citation or identification of any reference in this application shall not be construed as an admission that such reference is available as prior art to the present invention.

WHAT IS CLAIMED IS:

1. A device for tissue transport and handling, comprising:
first and second frames, configured to be superimposed, which comprise:
a cross-sectional area of between 50% and 90% of a cross-sectional area of a face of a removed tissue specimen; and
an overall design, which defines a device lateral side, a device superior side, and a device top face; and
holders, for holding said first and second frames together, when superimposed, while said removed tissue specimen is sandwiched therebetween, such that a tissue lateral side, a tissue superior side, and a tissue top face match said design.
2. The device of claim 1, and wherein said frames are shaped as rectangles, and defining an opening within.
3. The device of claim 1, and wherein said frames are formed of plastic.
4. The device of claim 1, wherein said frames are substantially transparent to x-ray imaging.
5. The device of claim 1, wherein said design includes a device lateral indicator, selected from a group consisting of a mark, a writing on said device lateral side, a color of said device lateral side, a protrusion on said device lateral side, a notch on said device lateral side, and a suture hole, adapted to receive a suture, on said device lateral side.
6. The device of claim 1, wherein said design includes a device superior indicator, selected from a group consisting of a mark, a writing on said device superior side, a color of said device superior side, a protrusion on said device superior side, a notch on said device superior side, and a suture hole, adapted to receive a suture, on said device superior side.

7. The device of claim 1, wherein said design includes a device top-face indicator, selected from a group consisting of a mark, a writing on said device top face, a color of said device top face, a protrusion on said device top face, a notch on said device top face, a writing on a device bottom face, a color of said device bottom face, a protrusion on said device bottom face, and a notch on said device bottom face.

8. The device of claim 1, wherein said design includes a color code.

9. The device of claim 1, wherein said design includes a color code, in accordance with a 6-color scheme.

10. The device of claim 1, and wherein said holders are surgical latex bands.

11. The device of claim 1, and wherein said holders apply a force of less than 500 gram on said tissue.

12. The device of claim 1, and wherein said holders apply a force of between 20 and 200 gram on said tissue.

13. The device of claim 1, and further including notches for maintaining said holders in place.

14. The device of claim 1, and further including handles for holding said device.

15. The device of claim 14, wherein said handles are corner handles.

16. The device of claim 1, provided in a plurality of sizes of widths and length.

17. The device of claim 16, wherein said plurality of sizes includes increases in width increments of between 10 and 20%.

18. The device of claim 16, wherein said plurality of sizes includes increases in length increments of between 10 and 20%.

19. A method for tissue transport and handling, comprising:
providing a device which comprises:

first and second frames, configured to be superimposed, and comprising:

a cross-sectional area of between 50% and 90% of a cross-sectional area of a face of a removed tissue specimen; and

a design which defines a device lateral side, a device superior side, and a device top face; and

holders, for holding said first and second frames together, when superimposed, while said removed tissue specimen is sandwiched therebetween;

placing said removed tissue specimen between said first and second frames, so that a tissue lateral side, a tissue superior side, and a tissue top face match said design; and

fastening said first and second frames with said holders.

20. The method of claim 19, and wherein said frames are shaped as rectangles, and defining an opening within.

21. The method of claim 19, and wherein said frames are formed of plastic.

22. The method of claim 19, wherein said frames are substantially transparent to x-ray imaging.

23. The method of claim 19, wherein said design includes a device lateral indicator, selected from a group consisting of a mark, a writing on said device lateral side, a color of said device lateral side, a protrusion on said device lateral side, a notch

on said device lateral side, and a suture hole, adapted to receive a suture, on said device lateral side.

24. The method of claim 19, wherein said design includes a device superior indicator, selected from a group consisting of a mark, a writing on said device superior side, a color of said device superior side, a protrusion on said device superior side, a notch on said device superior side, and a suture hole, adapted to receive a suture, on said device superior side.

25. The method of claim 19, wherein said design includes a device top-face indicator, selected from a group consisting of a mark, a writing on said device top face, a color of said device top face, a protrusion on said device top face, a notch on said device top face, a writing on a device bottom face, a color of said device bottom face, a protrusion on said device bottom face, and a notch on said device bottom face.

26. The method of claim 19, wherein said design includes a color code.

27. The method of claim 19, wherein said design includes a color code, in accordance with a 6-color scheme.

28. The method of claim 19, and wherein said holders are surgical latex bands.

29. The method of claim 19, and wherein said holders apply a force of less than 500 gram on said tissue.

30. The method of claim 19, and wherein said holders apply a force of between 20 and 200 gram on said tissue.

31. A device for tissue transport and handling, comprising:
first and second frames, each defining an inner opening, said frames being configured to be superimposed and said frames comprising:

thin linings, which are substantially transparent to x-ray imaging, and which stretch across said inner openings; and

an overall design, which defines a device lateral side, a device superior side, and a device top face; and

holders, for holding said first and second frames together, when superimposed, while said removed tissue specimen is sandwiched therebetween, such that a tissue lateral side, a tissue superior side, and a tissue top face match said design.

32. The device of claim 31, and wherein said frames are shaped as rectangles, and defining an opening within.

33. The device of claim 31, and wherein said frames are formed of plastic.

34. The device of claim 31, wherein said frames are substantially transparent to x-ray imaging.

35. The device of claim 31, wherein said design includes a device lateral indicator, selected from a group consisting of a mark, a writing on said device lateral side, a color of said device lateral side, a protrusion on said device lateral side, a notch on said device lateral side, and a suture hole, adapted to receive a suture, on said device lateral side.

36. The device of claim 31, wherein said design includes a device superior indicator, selected from a group consisting of a mark, a writing on said device superior side, a color of said device superior side, a protrusion on said device superior side, a notch on said device superior side, and a suture hole, adapted to receive a suture, on said device superior side.

37. The device of claim 31, wherein said design includes a device top-face indicator, selected from a group consisting of a mark, a writing on said device top face, a color of said device top face, a protrusion on said device top face, a notch on

48. The device of claim 46, wherein said plurality of sizes includes increases in length increments of between 10 and 20%.

49. The device of claim 31, and wherein said lining is formed as sheet of nylon.

50. The device of claim 31, and wherein said lining is formed as sheet of plastic.

51. The device of claim 31, and wherein said lining is formed as a grid.

52. A method for tissue transport and handling, comprising:
providing a device which comprises:

first and second frames, each defining an inner opening, said frames being configured to be superimposed and said frames comprising:

thin linings, which are substantially transparent to x-ray imaging, and which stretch across said inner openings;

a design which defines a device lateral side, a device superior side, and a device top face; and

holders, for holding said first and second frames together, when superimposed, while said removed tissue specimen is sandwiched therebetween;

placing said removed tissue specimen between said first and second frames, so that a tissue lateral side, a tissue superior side, and a tissue top face match said design; and

fastening said first and second frames with said holders.

53. The method of claim 52, and wherein said frames are shaped as rectangles, and defining an opening within.

54. The method of claim 52, and wherein said frames are formed of plastic.

55. The method of claim 52, wherein said frames are substantially transparent to x-ray imaging.

56. The method of claim 52, wherein said design includes a device lateral indicator, selected from a group consisting of a mark, a writing on said device lateral side, a color of said device lateral side, a protrusion on said device lateral side, a notch on said device lateral side, and a suture hole, adapted to receive a suture, on said device lateral side.

57. The method of claim 52, wherein said design includes a device superior indicator, selected from a group consisting of a mark, a writing on said device superior side, a color of said device superior side, a protrusion on said device superior side, a notch on said device superior side, and a suture hole, adapted to receive a suture, on said device superior side.

58. The method of claim 52, wherein said design includes a device top-face indicator, selected from a group consisting of a mark, a writing on said device top face, a color of said device top face, a protrusion on said device top face, a notch on said device top face, a writing on a device bottom face, a color of said device bottom face, a protrusion on said device bottom face, and a notch on said device bottom face.

59. The method of claim 52, wherein said design includes a color code.

60. The method of claim 52, wherein said design includes a color code, in accordance with a 6-color scheme.

61. The method of claim 52, and wherein said holders are surgical latex bands.

62. The method of claim 52, and wherein said holders apply a force of less than 500 gram on said tissue.

63. The method of claim 52, and wherein said holders apply a force of between 20 and 200 gram on said tissue.

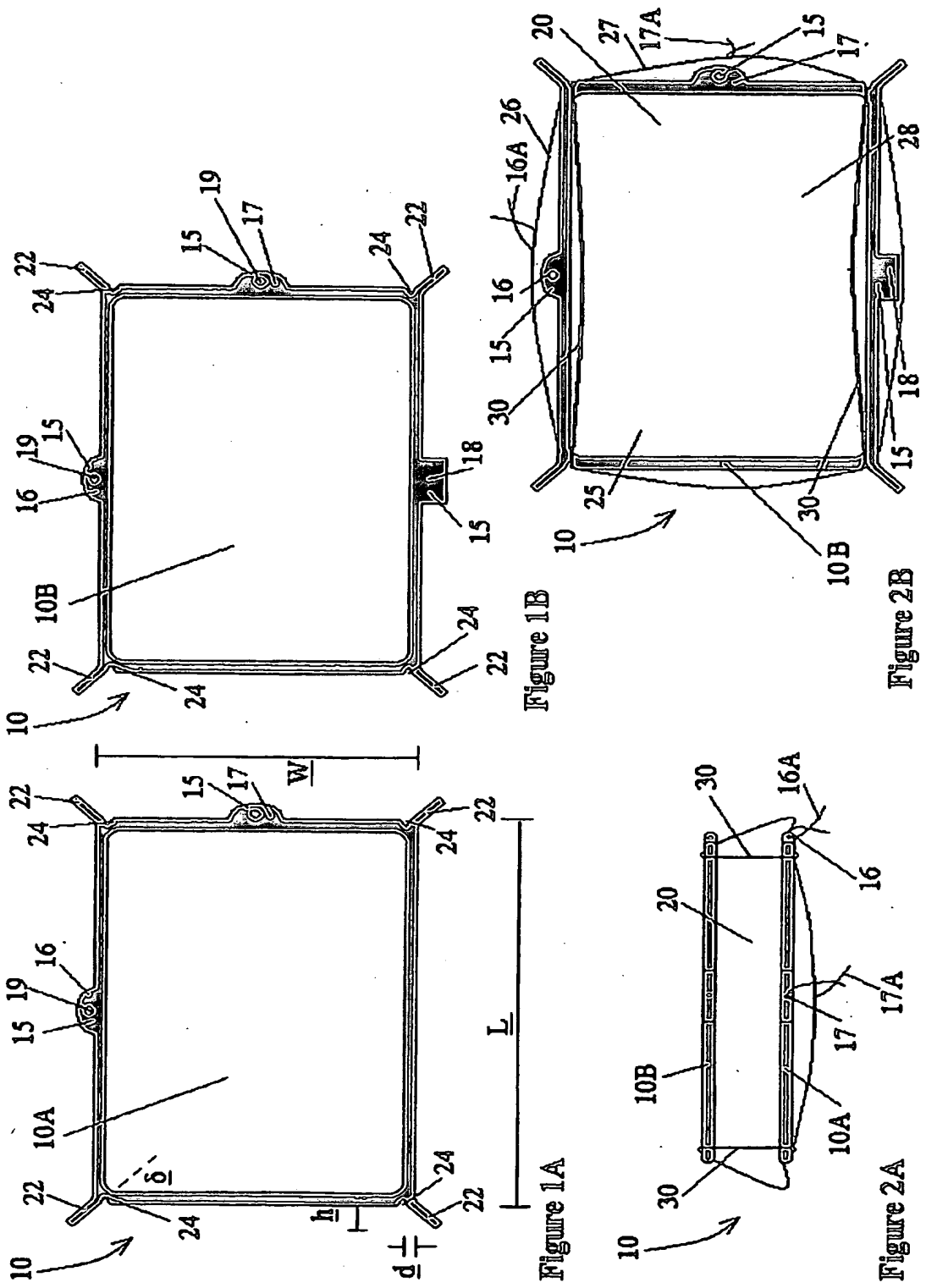
64. The method of claim 52, and wherein said lining is formed as sheet of nylon.

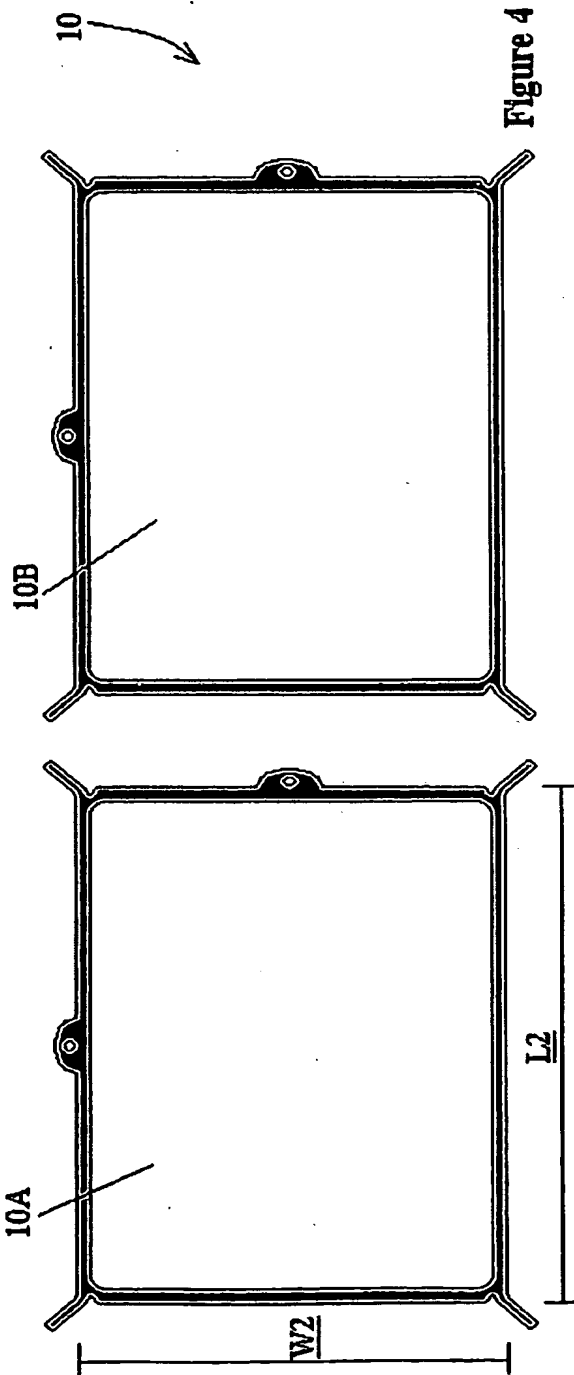
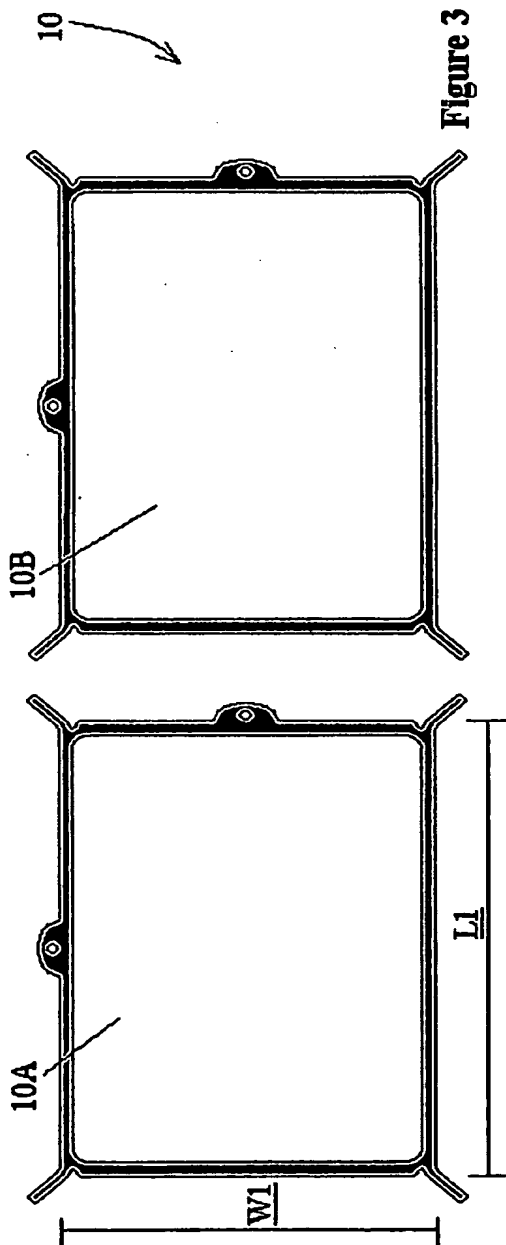
65. The method of claim 52, and wherein said lining is formed as sheet of plastic.

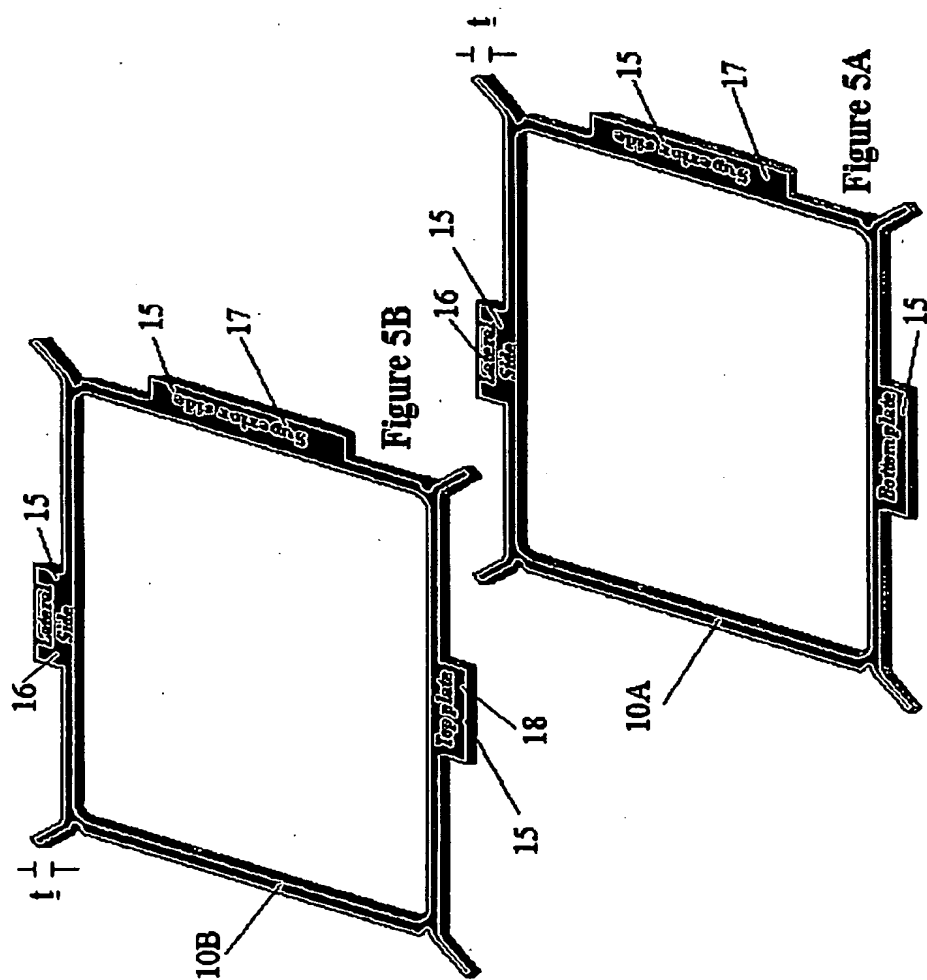
66. The method of claim 52, and wherein said lining is formed as a grid.

ABSTRACT OF THE DISCLOSURE

A device and method are provided for tissue transport and handling, while maintaining the in-vivo tissue orientation. The device includes first and second frames, configured to be superimposed, and having a cross-sectional area of between 50% and 90% of a cross-sectional area of a face of a removed tissue specimen. The first and second frames further include a design, which defines a lateral side, a superior side, and a top face. Additionally, the device includes holders, for holding the first and second frames together, when superimposed, while the removed tissue specimen is sandwiched therebetween, such that a tissue lateral side, a tissue superior side, and a tissue top face match the design. In accordance with an alternative embodiment, the device has a cross-sectional area which is larger than the face of a removed tissue specimen, and is lined with a thin material which is substantially transparent to x-ray and gamma imaging.







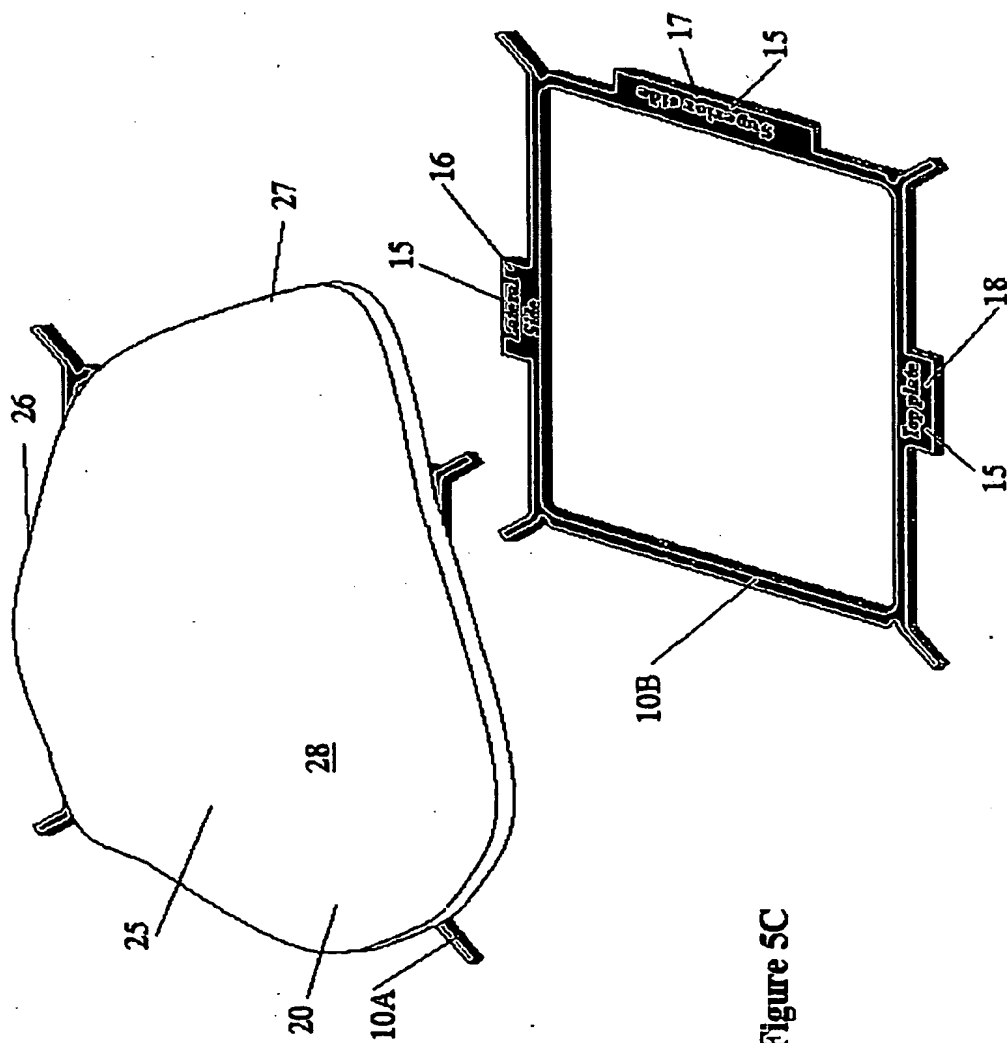


Figure 5C

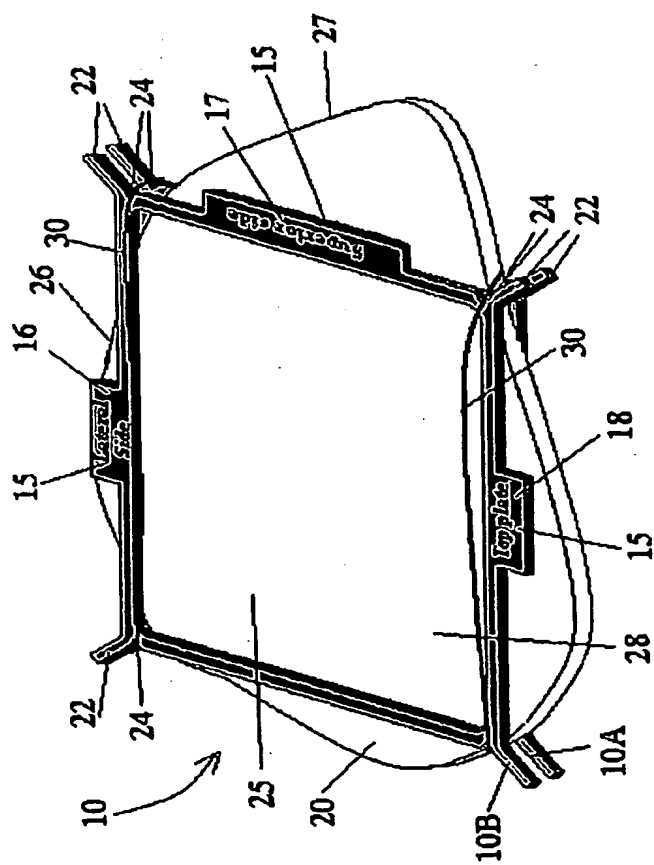
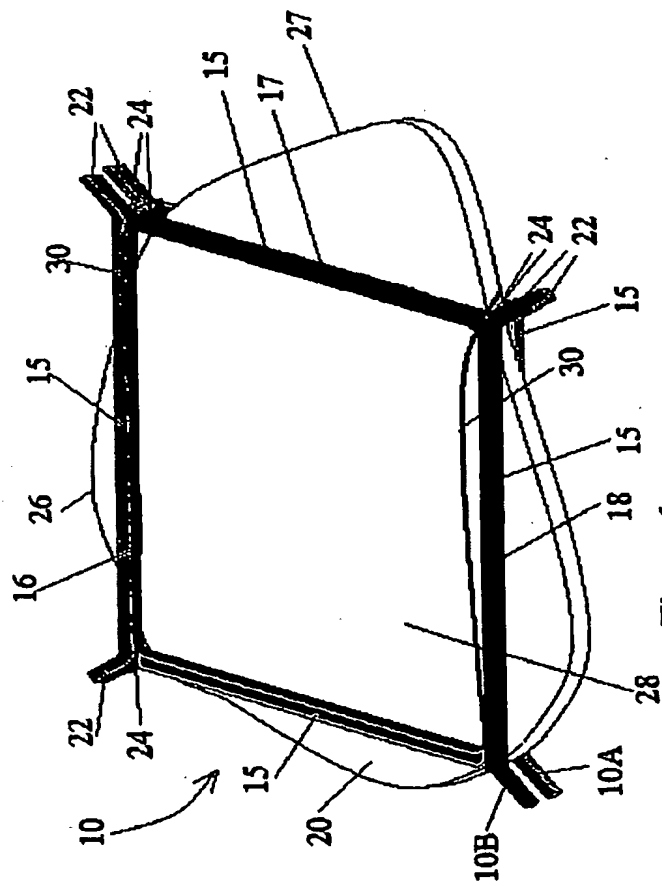


Figure 5D



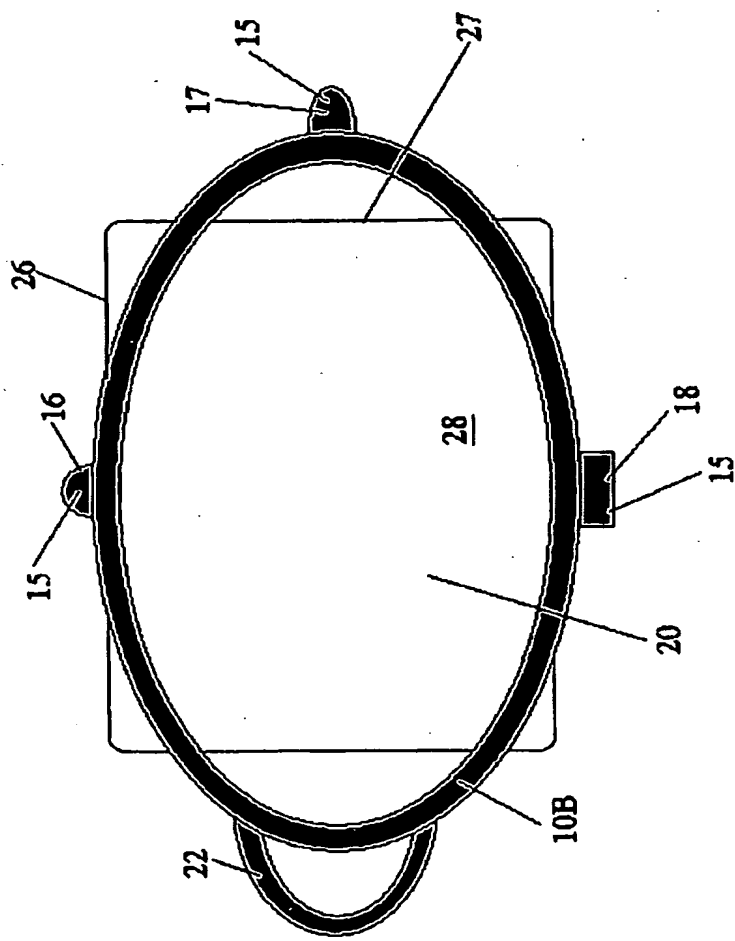


Figure 7

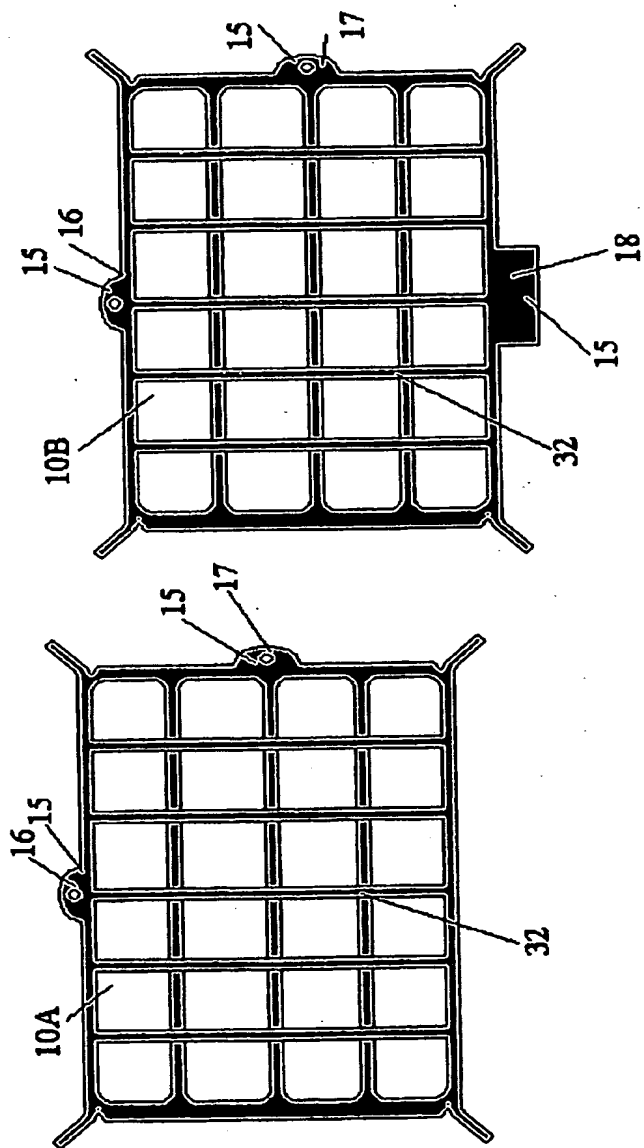


Figure 8

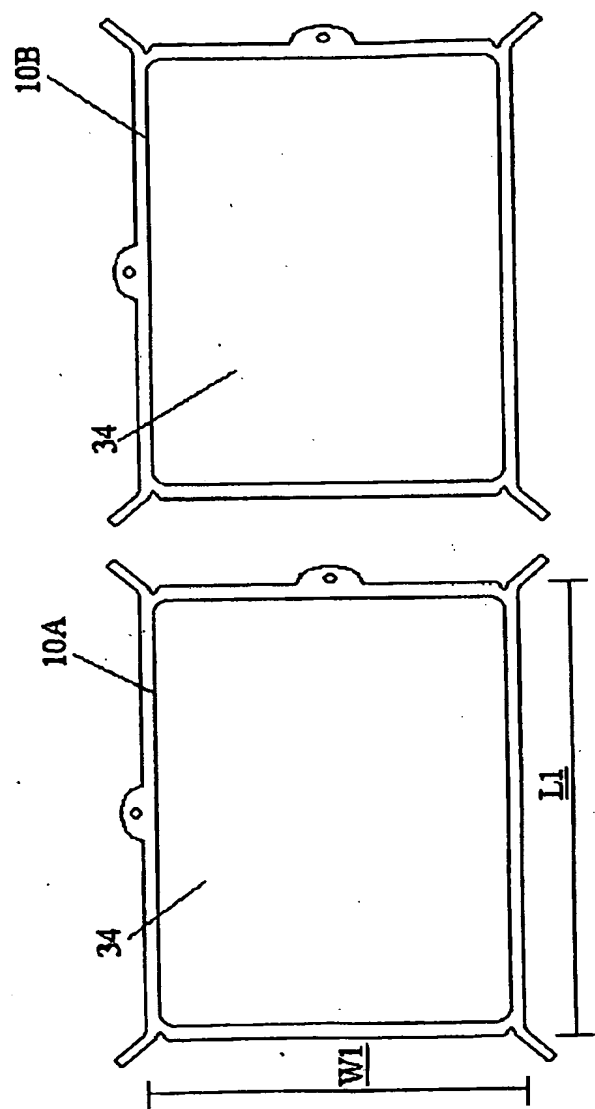


Figure 9

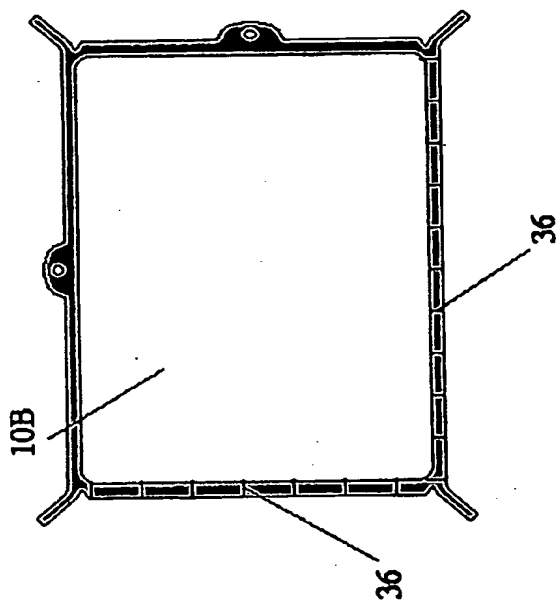


Figure 10